WHAT IS CLAIMED IS:

1.   A data processing apparatus for processing input data and outputting the processed data as output data, comprising:

extraction means for extracting from the input data similar input data having a value close to a value of given input data; and

processing means for processing the input data according to the similar input data extracted by said extraction means.

2.   A data processing apparatus according to claim 1, wherein said extraction means extracts the similar input data by applying a weight to the input data according to a difference between the input data and the given input data.

3.   A data processing apparatus according to claim 2, wherein said extraction means applies a weight to the input data by multiplying the input data with a predetermined weight function.

4.   A data processing apparatus according to claim 3, further comprising setting means for adaptively setting the weight function.

5. A data processing apparatus according to claim 4, further comprising estimation means for estimating a level of noise contained in the input data, wherein said setting means sets the weight function according to the estimated level of noise.

6. A data processing apparatus according to claim 1, wherein said processing means calculates the output data by adding the similar input data which are weighted according to temporal or spatial proximity between the similar input data and the given input data.

7. A data processing apparatus according to claim 6, wherein said processing means applies a weight to the similar input data by multiplying the similar input data with a predetermined weight function.

8. A data processing apparatus according to claim 7, further comprising setting means for adaptively setting the weight function.

9. A data processing apparatus according to claim 8, further comprising estimation means for estimating a level of noise contained in the input data, wherein said setting

means sets the weight function according to the estimated
level of noise.

10. A data processing apparatus according to claim 1,
wherein said extraction means extracts the similar input
data from the input data based on a difference between the
input data and the given input data.

11. A data processing apparatus according to claim 1,
wherein said extraction means extracts input data which is
temporally or spatially close to the given input data as the
similar input data.

12. A data processing apparatus according to claim 1,
wherein said extraction means extracts input data, as the
similar input data, whose difference from the given input
data is within a predetermined value.

13. A data processing apparatus according to claim 12,
further comprising setting means for adaptively setting the
predetermined value.

14. A data processing apparatus according to claim 13,
further comprising estimation means for estimating a level
of noise contained in the input data, wherein said setting

means sets the predetermined value according to the estimated level of noise.

15. A data processing apparatus according to claim 14, wherein said estimation means estimates the level of noise based on a difference between the input data and the corresponding output data or based on a variance of the input data.

16. A data processing apparatus according to claim 1, wherein said processing means calculates the output data by performing approximate processing using the similar input data.

17. A data processing apparatus according to claim 16, wherein said processing means performs the approximate processing according to a predetermined model.

18. A data processing apparatus according to claim 17, wherein said processing means performs the approximate processing according to a model represented by a linear expression.

19. A data processing method for processing input data and outputting the processed data as output data,

comprising:

an extraction step of extracting from the input data similar input data having a value close to a value of given input data; and

a processing step of processing the input data according to the extracted similar input data.